

ABSTRACT

A process for manufacturing a carbon fiber having a fiber diameter of 0.001 to 5 μm and a narrow fiber size distribution, and a resin composition suitable for the manufacture of a carbon fiber.

A resin composition comprising 100 parts by weight of a thermoplastic resin, 1 to 150 parts by weight of a carbon precursor organic compound (A) and 0.001 to 40 parts by weight of a copolymer of polymer segments (e1) and (e2) which satisfy a specific range of surface tension for the thermoplastic resin and a specific range of surface tension for the carbon precursor organic compound (A) at the same time. A process for manufacturing a carbon fiber, comprising the steps of producing a molded article of a precursor fiber (B) by treating the resin composition, subjecting the carbon precursor organic compound (A) contained in the precursor fiber (B) to a stabilization treatment so as to produce a stabilized precursor fiber (C), removing the thermoplastic resin contained in the stabilized precursor fiber (C), and carbonizing or graphitizing a fibrous carbon precursor (D) obtained by removing the thermoplastic resin.